long-distance telecommunication subsidiary, MCI Telecommunications Corporation ("MCIT")."[40] Furthermore, as discussed above, AT&T has consciously sought to reduce its sales to wholesale markets, and (as discussed below), MCI has apparently reduced its wholesale sales, while resellers have shown growing demand.

b) WorldCom has developed services specifically for the wholesale market.

49. WorldCom has been an innovator in the wholesale market—treating it as an opportunity for profit, rather than as a legal requirement. For example, WorldCom introduced a service known as Transcend, specifically for wholesale customers. Transcend features a three-tiered pricing structure that allows retail carriers to benefit from more cost-based rates: (1) it offers lower prices in areas where WorldCom uses its own facilities and higher prices where it relies on leased facilities; and (2) WorldCom passes through access charges with only a small administrative fee—which is less than the markup on access charged by other carriers.[41]

c) At present, WorldCom's product mix is much different from those of the Big Three

50. As a result of its aggressive efforts to win wholesale customers WorldCom derives a far larger share of its total revenues from wholesale sales than AT&T, MCI or Sprint. The data also suggest that MCI may have reduced its wholesale market presence in 1997 compared to 1995.

- The Yankee Group reported that WorldCom's 1995 wholesale revenues were about $1.1 billion per year or about 27 percent of WorldCom's total revenues compared to only 8 percent for Sprint, 7 percent for MCI, and 2 percent for AT&T.
- Estimates based on 1997 Frost and Sullivan data show that WorldCom's wholesale revenues were about $1.8 billion per year or about 28 percent of WorldCom's total revenues compared to only 7 percent for Sprint, 2.4 percent for MCI, and 2.9 percent for AT&T. (Note also that, although differences in methods used by the data sources could account for some of the growth by WorldCom from $1.1 billion in wholesale revenue in 1996 to $1.8 billion in 1997, the growth is also consistent with large gains by resellers and with WorldCom's above cited reports to the SEC.)

In contrast, MCI has clearly focused on the retail market:

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[40] MCI's Form 10-K, for fiscal year ended 12-31-96; emphasis added

[41] Yankee Group, "Resale: A $10 Billion Footnote to the Long Distance Market," March 1996, and discussions with GTE personnel.

- MCI's share of wholesale revenues amounted to about 7 percent of MCI's total revenues, based on 1995 Yankee Group data and only about 2.4 percent based on 1997 Frost and Sullivan data.
- Although some of the apparent decline could be due to the use of different sources, the difference is consistent with the view that MCI is seeking to reduce its wholesale presence.

51. WorldCom's unique focus on wholesale services is shown by Exhibits 9 and 10, which show that wholesale revenues account for substantially more of WorldCom's total revenues than they do for the current Big Three.

WorldCom's different strategy is also reflected in its mix of revenues in retail markets.

- WorldCom derives only about 15 percent of its total revenues from retail sales to residence and small business.
- MCI, AT&T and Sprint derive from two to over four times higher percentages from retail sales to residence and low-volume business customers than WorldCom does. See Exhibit 11.

52. This same pattern is reflected in its relative shares of low-volume and high-volume markets. Consistent with its efforts to minimize retail costs and serve larger customers, WorldCom has much smaller shares of the residence and low-volume business market (Exhibit 12) than it does of the high-volume business market (Exhibit 4).

2. WorldCom has achieved a disproportionate share of the wholesale market.

53. WorldCom has a disproportionately large share of the wholesale market.

- Our estimates based on 1997 Frost and Sullivan data show that WorldCom's wholesale revenues were about $1.8 Billion dollars per year or about 38 percent of total wholesale revenues, even though WorldCom accounted for about 8 percent of the total revenues reported by the FCC for 1997.

In contrast, MCI has a much smaller share of the wholesale market:

- MCI's share of wholesale revenues amounted to only about 9 percent based on 1997 Frost and Sullivan data.

B. The merger would harm competition in the residence and low-volume business market.

1. The merged company would become more like MCI and, thus, more like the other vertically integrated firms.

54. If the merged company merely continued pursuit of its current lines of business, it would derive about 29 percent of its revenue from residence and small business customers compared with about 15 percent for WorldCom today. (See Exhibit 11.) Similarly, the merged company would derive much more revenues from retail low-volume customers than from wholesale customers, whereas WorldCom currently derives substantially more revenues from wholesale than from low-volume retail customers. (See Exhibit 13.) Thus, as a result of the merger, the merged company would serve roughly the same mix of customers as MCI, and a very different mix of customers from those that WorldCom currently serves. Similarly, in terms of market concentration, the merged company's share of the residence and small business retail market would be about 14 percent, compared with about 2 percent for WorldCom today. (See Exhibit 12.)

2. The transformation of WorldCom to a more vertically integrated firm—whose characteristics, cost structure and incentives would more closely mirror those of MCI, AT&T and Sprint—would reduce its incentives to provide low-priced, high-quality wholesale long distance services to resellers.

55. A firm's decisions regarding the channels through which it sells its products and services—like all other investment decisions—is guided by the expectation of profit. WorldCom's decision to sell to residence and small business customers primarily through reseller intermediaries rather than through WorldCom's own brands indicates that it expects such specialization to be more profitable. Marketing services to residential and small business customers is fundamentally different from marketing to large business customers. To sell in mass retail markets, the firm must incur large fixed costs to establish and maintain its brand, whereas large business customers require visits and proposals from individual, customer-specific representatives engaged in "shoe leather marketing." WorldCom's focus has been to supply bulk services to large business customers and resellers and avoid the investment in fixed, sunk costs required to sell directly to the retail and small business market. (See Section A, above.) This strategy appears to have been profitable for WorldCom, and there is no reason to believe that—absent the merger—WorldCom would abandon its position and market directly to residential and small business customers.

56. If the merger were consummated, however, the incentives of the vertically integrated MCI-WorldCom would be very different from those of WorldCom today. MCI has invested heavily in the fixed, sunk costs required to establish and maintain a retail brand name. AT&T, MCI and

Sprint together spend more than $1 billion per year in brand advertising, ranking 1st, 12th and 16th respectively among U.S. corporate advertisers.[42] Further, "MCI has a $475 million ad budget while acquirer WorldCom's is only $10 million."[43] Because retail margins are much higher than wholesale margins (reflecting both oligopolistic behavior in retail markets and the high fixed costs of retail marketing), MCI-WorldCom would profit more by selling at retail than at wholesale to resellers. Thus, a consequence of the merger would be the replacement of a specialist wholesale firm with unambiguous incentives to expand output in the wholesale markets and improve service quality, thus enhancing the competitive vigor of resellers, by a vertically integrated firm in which retail sales were more profitable than wholesale sales.

57. Consider a stylized example in which the technologies of supplying wholesale and (residential and small business) retail services differ only by the requirement that retail suppliers incur large fixed (sunk) costs every year to establish and maintain their brands. It follows, then, that the margin (price less incremental cost) on wholesale usage is smaller than the margin on retail usage.[44] Suppose, somewhat realistically, that the margin on wholesale usage is about 0.5 cents per minute while the retail margin is about 5 cents per minute.[45] If this situation is a profit-maximizing equilibrium for the firm, it must be choosing a level of fixed mass marketing expense so that at expected volumes of wholesale and retail demand, the incremental revenue from shifting a minute of demand from the wholesale to the retail channel

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[42] "Top 100 megabrand mergers," *Advertising Age*, September 29, 1997.

[43] Beth Snyder, "Marketing Savvy Tops WorldCom's Bid for MCI," *Advertising Age*, October 1997.

[44] We assume wholesale services and retail services—considered separately—each recovers its total service incremental costs. The presence of fixed mass marketing costs for retail services means that the retail margin must exceed the wholesale margin because marketing expenses are a fixed cost <u>specific</u> to the supply of retail services, and thus must be recovered in the price of those services.

[45] Although precise data are not available because firms do not report separate wholesale and retail margins, the evidence shows that wholesale margins are thinner. Ignoring opportunity cost, prices paid by resellers—in the public domain—are as low as 1.5 cents per minute (above access) so that the margin is probably less than 1 cent per minute. Professor Robert Hall, in affidavits filed on behalf of MCI, estimates that long distance service costs are below ten cents per minute. (See Affidavit of Robert Hall for MCI, in *Application of SBC Communications Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc., for Provision of In-Region, InterLATA Services in Oklahoma*, CC Docket 97-121, at ¶ 36; and Declaration of Robert Hall, on behalf of MCI, MCI Exhibit D, regarding *Application of BellSouth Corporation, BellSouth Telecommunications, Inc. and BellSouth Long Distance, Inc. for Provision of In-Region, InterLATA Services in South Carolina*, CC Docket No. 97-208 (October 20, 1997), at ¶ 122) He estimates costs by finding "the best available price . . . for offices and homes," which some resellers offer; thus, smaller carriers can have costs no greater than about 10 cents per minute—i.e., his estimate is an upper bound, since a reseller which can profitably sell at that price might pay more than the incremental costs of one of the facilities-based carriers for network transmission and switching. Based on calculations using current AT&T tariffs and data on its average discounts and calling patterns from the PNR Bill Harvesting III data base, we estimate that AT&T's average price (for all residence customers, including those with discounts) for interstate direct-dialed calls is about 15.6 cents. This implies a profit margin of about 5.6 cents per minute—i.e., a markup of 56 percent—if AT&T is about as efficient as a reseller able to offer the 10 cent per minute rate cited by Professor Hall.

would just be offset by the additional (fixed) marketing cost required to sell the additional minute at retail. Obviously, once the firm has chosen its level of retail marketing expense, it would prefer to sell every minute it could supply through its retail channel.

58. How do the incentives to invest in and market wholesale services differ between an integrated wholesale-retail firm and a firm that specializes in wholesale services? As a preliminary matter, the removal of WorldCom as an unintegrated supplier of wholesale services would lead to higher wholesale prices and smaller volumes of usage sold through wholesale channels. There are large fixed costs required to establish a nationwide facilities-based long distance network, and current capacity is controlled by only four firms, including WorldCom and MCI. The merger would significantly increase concentration among suppliers of wholesale services, as discussed above in Section III, which, by itself, raises the concern that the merger could lead to higher prices through coordinated interactions. In addition to coordinated interaction effects, the fact that the supply of wholesale and retail services are linked means that an unintegrated supplier of wholesale services has different incentives for unilateral actions in wholesale and retail channels than its integrated competitors. Furthermore, we can presume retail margins are smaller for WorldCom now than they would be with a merger because WorldCom has said its pursuit of wholesale to reach low-volume customers in the retail market was predicated on avoiding high retailing costs, whereas MCI has incurred those costs and built up a brand name; thus, the evidence strongly suggests that the relative size of the margins would have to change if the merger is completed.

59. The difference in incentives arises from imperfect competition in the wholesale market and the possibility of substitution between retail and wholesale channels of supplying services. When an integrated firm supplies a minute at wholesale, there is, by definition, a minute of retail service that it does not supply. If the market supply curve for wholesale services were flat—i.e., unlimited supply were forthcoming at the market price—there would be no effect on the retail sales of the integrated firm. If it failed to supply the wholesale minute, another firm would. The effect on its retail sales would be the same—a minute that it does not serve—and it would lose the margin from the wholesale minute. At the other extreme, if the integrated firm were the sole supplier of wholesale services, every minute sold at wholesale would increase reseller retail sales by one minute and reduce the integrated firm's retail sales in proportion to its retail market share. In between these extremes, removing capacity from the wholesale market would have the effect of shifting the industry supply curve inward, so that wholesale prices would rise and volumes would fall. In this case, when the integrated firm supplies a minute of wholesale service, it would expect an increase (of something less than a minute) in reseller retail sales and a reduction in its retail sales in proportion to the product of its market share and the increase in reseller retail sales.

60. Alternatively, the difference in incentives can be explored from the retail perspective. When a vertically integrated firm determines, at the margin, to increase its retail demand by marketing, it imposes additional cost on its retail rivals: if they wish to continue to sell at their current levels, they will have to undertake commensurate marketing activities. The increased

costs imposed on retail rivals will shift inward the demand curve for wholesale services faced by the wholesale division of the integrated firm. Alternatively, an integrated firm that expands the retail demand for its own service shifts downward the residual retail demand curve faced by its retail rivals, which reduces the demand for wholesale services facing the integrated firm.

61. In Exhibit 14, we show the calculation for the case in which an additional minute supplied at wholesale increases the volume of reseller retail supply by one minute. When WorldCom is unintegrated, its retail market share (for residential and small business customers) is only 2 percent, so that the additional wholesale minute supplied reduces its expected retail demand by 0.02 minutes. Thus, the opportunity cost of expanding wholesale sales amounts to 0.1 cents per minute, leaving a margin of 0.4 cents per minute from supplying wholesale service. When WorldCom is integrated into MCI, their combined residential and small business market share is about 14 percent. The same calculation shows that an additional minute of wholesale service supplied would result in an expected decrease in retail demand of 0.14 minutes, amounting to an opportunity cost (per minute) of 0.7 cents. An opportunity cost of this magnitude overwhelms the margin from wholesale service and implies that a profit maximizing vertically integrated firm with an established brand would serve only the retail market.

62. Although we do not literally observe this outcome—because the Big Three have been required to permit resale of their discounted, high-volume business services—the rapid rise of WorldCom's wholesale operation and its disproportionate share of the wholesale market provides strong evidence that the Big Three have not competed aggressively for wholesale business. Given that the Big Three have had more ubiquitous networks and substantially more traffic than WorldCom, they presumably have had lower costs for the network and access services that constitute the bulk of costs for provision of wholesale services. This suggests that they must face other costs—opportunity costs from lost retail sales—which are much higher than those of WorldCom because WorldCom does not have the same retail market penetration, especially for residence and low-volume business customers.

63. There are several other reasons why incumbent vertically integrated providers would not want to offer favorable terms to resellers:

- Resale helps entrants become facilities-based providers in the long run typically by permitting them to build up their customer base, and to determine from where and from whom their demand is coming. They then can invest in facilities more efficiently. As a result vertically integrated firms would rather not stimulate resale, all else equal.

- If MCI or Sprint wants to compete with WorldCom and its resellers, it would probably choose to do so at the retail level. If MCI competes with WorldCom for wholesale sales to resellers that competition would reduce the resellers' costs. The resellers downstream will, because the reseller markets are probably quite competitive, pass those lower costs on to the market. So MCI, Sprint will have to respond again in the retail market to those lower prices.

- This effect implies that wholesale price competition is not in the interest of integrated firms, because it has a "reverberating" effect on retail prices. There are linked margins, so that cutting price in one market reduces price in the other and therefore is less attractive to a firm that can compete effectively in the retail market This effect thus shows why integrated firms have a smaller incentive to seek resellers' business.

3. If the merger is approved, and WorldCom becomes predominantly a vertically integrated provider, then the remaining non-vertically integrated providers of wholesale capacity could raise their rates.

64. As explained in more detail above: (1) the large facilities-based carriers, including WorldCom/MCI, with a larger concentration in their wholesale market, would be expected to try and succeed in raising wholesale prices; and (2) each of the large facilities-based carriers is also a large retailer. Each would want to avoid offering low wholesale prices because that would undercut its own retail business.

4. By raising the cost of wholesale capacity, the merger would weaken the ability of current and future resellers to compete with the other IXCs for retail services and to bring lower prices to residence and small business consumers.

65. Benefits to the merged company from a wholesale price increase would be substantially greater than to WorldCom absent the merger. Since the merger would increase concentration in the wholesale market, it would facilitate raising wholesale rates. Resellers are not able to charge retail rates as high as the established IXCs; thus, their margins are lower. Higher wholesale prices would force them to accept even lower margins or to raise rates which would allow the new Bigger Three to gain additional profits or slow their retail market share losses.

V. OTHER NETWORKS DO NOT PROVIDE A VIABLE SOURCE OF WHOLESALE CAPACITY.

66. The impact of this merger on the structure of wholesale markets and on the incentives of the merged firm would be of no significance if other vendors could easily expand output to defeat attempted price increases by MCI-WorldCom. That is, if the wholesale market were characterized by a flat supply curve beyond the very short run, increased concentration in that market or a reduction in the incentives of the largest vendor to supply output would not be a serious concern. Unfortunately for consumers, for at least several years other sellers will be unable to fill the wholesale market gap an MCI-WorldCom merger would produce. To do so

they would have to develop: (1) extensive network connections (beyond their backbone routes) that reach closer to LEC tandems and end offices at traffic densities close to WorldCom's; and (2) complex and costly network management, switching, signaling, billing, operations support and other back office systems, as well as access agreements and facilities. It took WorldCom many years before it reached its current size, even with a series of mergers and acquisitions. Thus, although proponents of the merger argue that the new networks will soon increase the fiber backbone routes available to resellers, recent announcements by regional fiber backbone network operators (e.g., Qwest, IXC, Williams) do not eliminate the serious concerns that would arise if the merger transformed WorldCom to a vertically integrated provider of residence and low-volume business services. These networks are now only a fraction of WorldCom's size and, as explained in more detail below, even if they succeed in building out their domestic backbone routes as planned, they are unlikely to provide wholesale prices or services equivalent to those WorldCom would have provided (absent the merger) by the time of their expected completion.

A. Others are not viable options at this time.

67. Evidence that WorldCom is uniquely situated among the non-vertically integrated sources of wholesale capacity includes the following:

- WorldCom's network is already widely deployed and functioning to provide the largest share of wholesale services. The wholesale revenues of IXC and Qwest were substantially smaller than WorldCom in 1997. (See Exhibit 8.)
- As IXC recognizes, AT&T, MCI, WorldCom and Sprint all "have substantially greater financial resources than [IXC] and a far more extensive transmission network than [IXC's] network." (1996 10-K at 14)
- As explained above, WorldCom's network is substantially larger and its network is interconnected with substantially more LEC locations than those of any of the potential competitors for wholesale services. (See Exhibits 5 and 6.)
- In light of the trend towards an integrated global economy, resellers in the long distance market need to be able to offer their customers international services and, unlike the potential wholesale competitors, WorldCom already has significant international services and facilities:
    - Worldwide Satellite Coverage with over 80 earth stations and over 25 international dedicated gateway earth stations.[46]
    - Capacity in the majority of undersea cables.[47]

[46] Obtained from WorldCom's web-site at http://www.wcom.com/aboutwc.html.

[47] *Ibid.*

- Service to all of the major international financial centers, service which will be required by many medium and large businesses.[48]
- "...over 200 operating agreements with foreign carriers to provide switched voice and/or private line services..."[49]
- "...public switched international telecommunications services worldwide and ... direct services to approximately 55 foreign countries."[50]

B. Others do not offer the same capabilities and advanced services as WorldCom.

68. Fiber route miles are only one aspect of the story. Firms seeking to compete with the major IXCs need to provide more broad-based service—both geographically and in terms of product diversity. If not, they will find it difficult to satisfy consumer and business demands for "one-stop shopping," and their costs will be increased compared to the costs of using a single extensive, diversified wholesale provider.

69. Thus, public data on route miles and POPs give an incomplete picture of how extensive carriers' offerings are both geographically and in terms of product diversity. To understand how well-suited competitors' offerings could be as replacements for WorldCom's, we would need data on whether the networks were equipped fully to provide switched voice services—e.g., whether the network management operations support and signaling systems, switching, software, billing, and other back office systems and advanced services needed to compete with established carriers—were available and working efficiently and reliably.

70. Thus, it is not sufficient for those supporting the merger to present evidence that new fiber backbones are expected to be completed in one or two years. The completion of fiber backbones is only one of several requirements to ensure that the merger would not undermine competition by restricting the availability of wholesale long distance capacity. And, as shown below, the new entrants are not likely to meet these requirements for years to come.

C. Other networks are not likely to become adequate substitutes to exert as much competitive pressure as WorldCom would if it continued to be independent.

71. The four fiber backbones being constructed are not expected to approach the current length of WorldCom's backbone route for at least a year, much less the reach of WorldCom's

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[48] *Ibid.*

[49] WorldCom's Form 10-K for year ended December 31, 1996.

[50] *Ibid.*

complete network; and by the time they reach that size WorldCom's network will most likely be larger and more advanced than it is now. To implement its strategy to expand its wholesale operations, WorldCom intended to continue to expand its network even beyond its extensive 1997 footprint.[51] In contrast, the other potential sources of supply are over a year from their anticipated, but uncertain, completion dates merely for their backbones.

- For example Qwest is already behind schedule and its most recent announcements say that construction on its backbone fiber network will not be completed until the third quarter of 1999.
- More importantly, WorldCom offers a much more extensive backbone today than Qwest may (or may not) have available by the third quarter of 1999. In addition, WorldCom has about 60 percent more POPs today than Qwest expects to deploy by 1999. If WorldCom adds only half as many POPs per year as it did in the last year, it would have over 200 POPs by the third quarter of 1999 or about twice as many as Qwest.[52]
- The uncertainty of such construction plans is indicated in a March 28, 1997 statement in which IXC cautioned that "[t]he Company has, from time to time, experienced delays with respect to the construction of certain portions of the network expansion and may experience similar delays in the future." It also acknowledged that it "...has not yet obtained all the necessary rights-of-way along the planned routes..." although it believed that "the rights-of-way will be available."[53]
- IXC projects that its total revenues will not reach $1 billion per year until 2,000 while WorldCom's revenues from wholesale services alone may already exceed $1.8 billion.
- IXC admits that it "does not intend to expand its network to all areas of the United States. Accordingly, [IXC] anticipates that it will continue to need to lease a significant amount of capacity from other carriers regardless of the network expansion."[54] Given that IXC has announced that it is building one of the most extensive new fiber backbones, this implies that the other new fiber backbones will also be required to lease a significant amount of capacity. In particular, Qwest's fiber backbone is expected to be smaller than IXC's; thus, this same limitation applies to Qwest. Therefore, IXC's admission that it will not cover the entire U.S., coupled with the probability that other backbones will not have ubiquitous coverage either, means that the entrants will not be able to match WorldCom's extensive network.

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[51] WorldCom 1996 Annual Report, March 1997, p. 4.

[52] WorldCom's POP growth has been substantial. FCC data on fiber deployment showed 100 POPs at year end 1996, while current figures place WorldCom at 162.

[53] IXC 1996 10-K, at pp. 12, 22).

[54] *Ibid.*, at p. 33.

72. Without network extensions, the new backbones under construction will be more costly and less efficient for a reseller to use. Based on available data on WorldCom's Transcend wholesale prices for various originating, terminating and end-to-end services, it seems clear that it is less costly for a competitor to use its own facilities than to purchase capacity from a wholesale provider.[55]

73. As illustrated in Exhibit 15, the cost for transport is less than half as much when a carrier can use its own points of presence (POPs) at both ends as when it must purchase originating or terminating service for its traffic (i.e., when traffic is terminated or originated "off net," using another carrier's POP and transport for part of the route). In addition, the structure of WorldCom's Transcend tariff indicates that route density also influences the costs to wholesale providers and, thus, the prices faced by resellers. This is shown in Exhibit 16, which reports the incremental charges by WorldCom for minutes of use terminated on different "tiers" compared to traffic carried wholly on WorldCom's own facilities (tier A at both ends of a call). When one end of the call uses "tier B" (long-term, high-capacity facilities), the incremental charge is least expensive. When both ends terminate on "tier C" (short-term, low-capacity) facilities, the incremental charge is highest. This pricing shows that new entrants will tend to face higher costs and have to charge higher prices to resellers. This is the case because they will have many more cases in which they will terminate or originate traffic on lower capacity facilities with higher average costs. Further, since they cannot be sure of how much traffic they will be able to send over these facilities, they will be unlikely to risk committing to long-term high-capacity leases.

74. Furthermore, the added complexity of such arrangements makes them more time consuming and costly to arrange and may make them less reliable. It would be much more time consuming to have to cobble together a network from multiple vendors—a backbone fiber vendor plus providers of interLATA transport and POPs—than to use capacity from WorldCom's more complete and extensive network.

75. Furthermore, the announced Level 3 backbone and the fiber capacity Qwest expects to operate on its own behalf (as opposed to the fiber it has sold to others) will evidently focus on Internet Protocol (IP) technology which is substantially less well suited to resale by traditional long distance carriers than the circuit switched technology used by WorldCom. By Level 3's own assessment this technology is not yet well suited to switched voice services. Although James Crowe, Level 3's chief executive, believes that advances in the technology "over the next few years" would allow Level 3 to offer voice quality equal to that of more traditional systems,

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[55] We obtained the WorldCom Transcend list price from the Yankee Group's "Resale: A $10 Billion Footnote to the Long-Distance Market," Vol. 11, No. 4, March 1996, and obtained data on the cost of end-to-end transport as well as independent estimates of the cost of purchasing transport from "Network Swapping," Phone+, July 1997, p.36.

> … He said however: "With today's technology, I.P. is fine for anything that's not timing-sensitive, like data or fax. Anything that's timing-sensitive, primarily voice and video, isn't handled very well." [56]

The same article in which Mr. Crowe was quoted also reported that:

> I.P. can allow networks to be used more efficiently but can also be less reliable than traditional networks. Traditional networks generally allow voice and data messages to be transmitted in one continuous chunk. I.P. Networks break messages into small packets that are each sent independently to their destination.[57]

76. Finally, Williams maintains that it has an existing 11,000 mile fiber backbone and will lay 7,000 miles more by year-end 1998 for a total of 18,000 miles. However, it is unclear how much capacity Williams' 11,000 mile route offers. According to a Williams' press release, "Williams sold all but one strand of its 11,000-mile network to WorldCom…" Therefore, Williams may only be able to supply a limited amount of service, and that service will lack redundancy.

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[56] Schiesel, Seth, "Peter Kiewit Sons to Build National Fiber Optic Network," *The New York Times*, January 21, 1988, p. D-10.

[57] *Ibid.*.

Affidavit
Of
Richard Schmalensee
and
William E. Taylor

STATE OF MASSACHUSETTS

COUNTY OF MIDDLESEX

I, Richard Schmalensee, being duly sworn, depose and say that the foregoing affidavit is correct to the best of my knowledge and belief.

Richard Schmalensee

Subscribed to and sworn to, under the penalties of perjury this 12th day of March, 1998

Notary Public

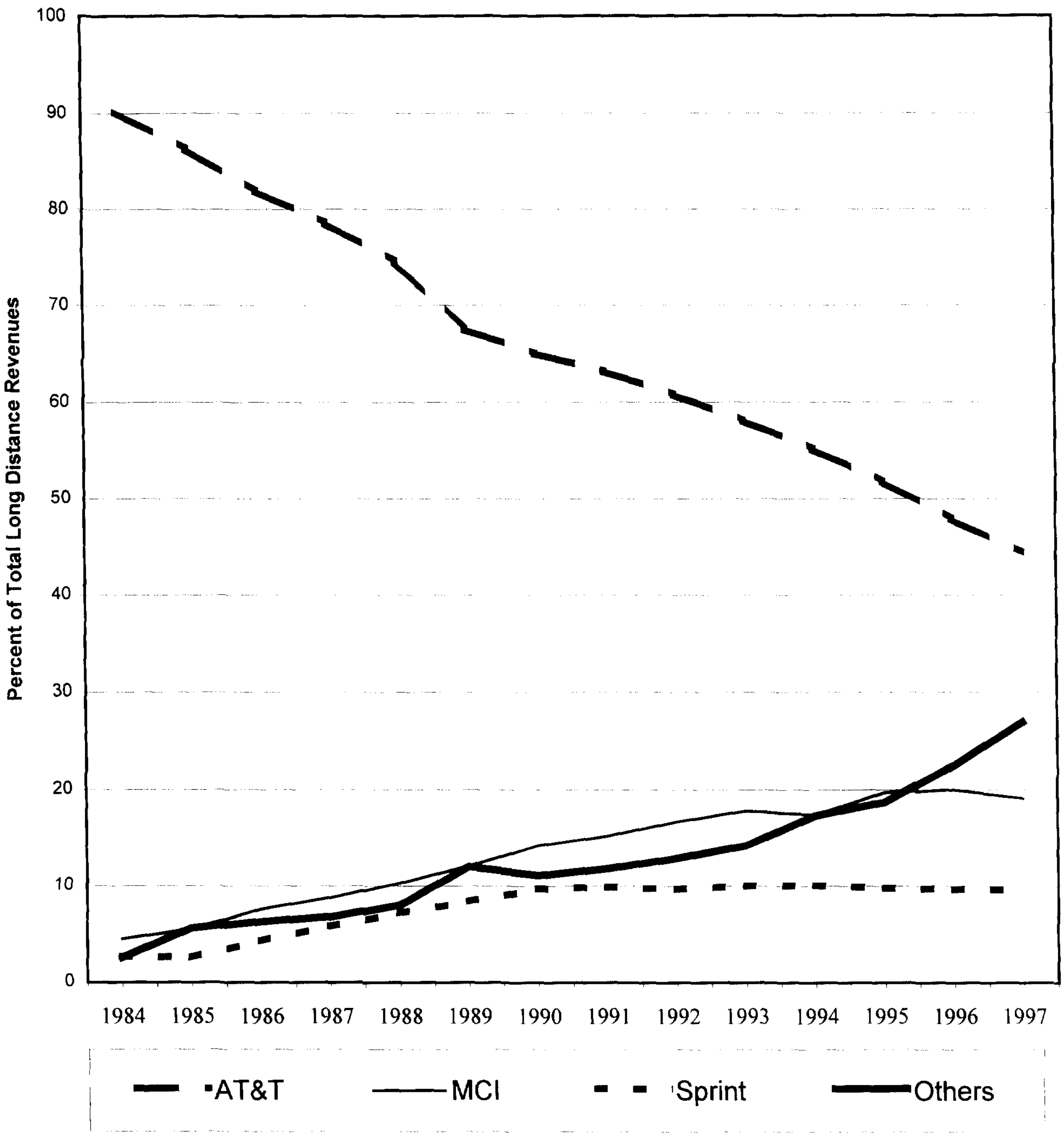
My Commission expires:
July 7, 2000

I, William E. Taylor, being duly sworn, depose and say that the foregoing affidavit is correct to the best of my knowledge and belief.

William E. Taylor

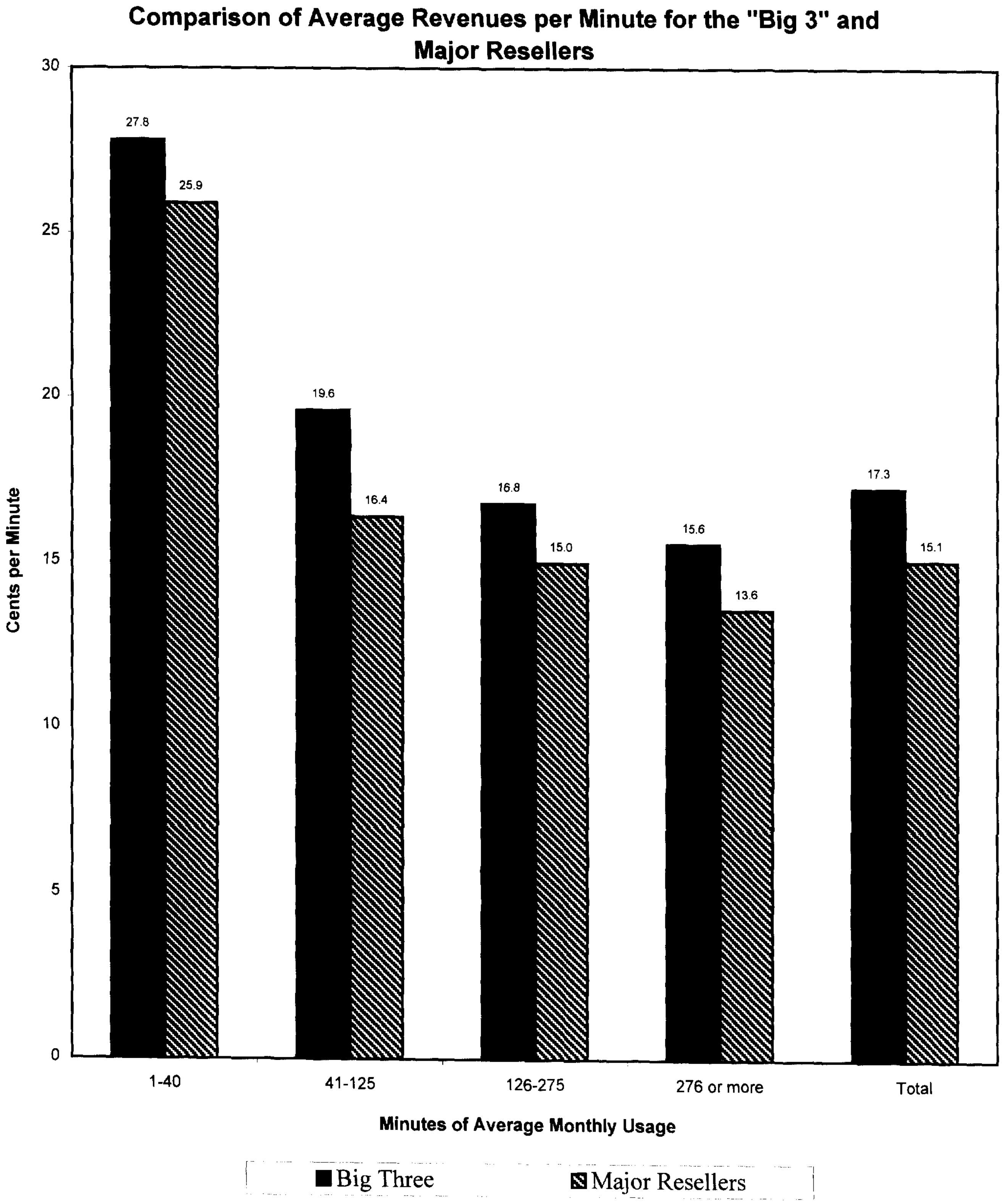
Exhibit 1

Share of Long Distance Operating Revenues



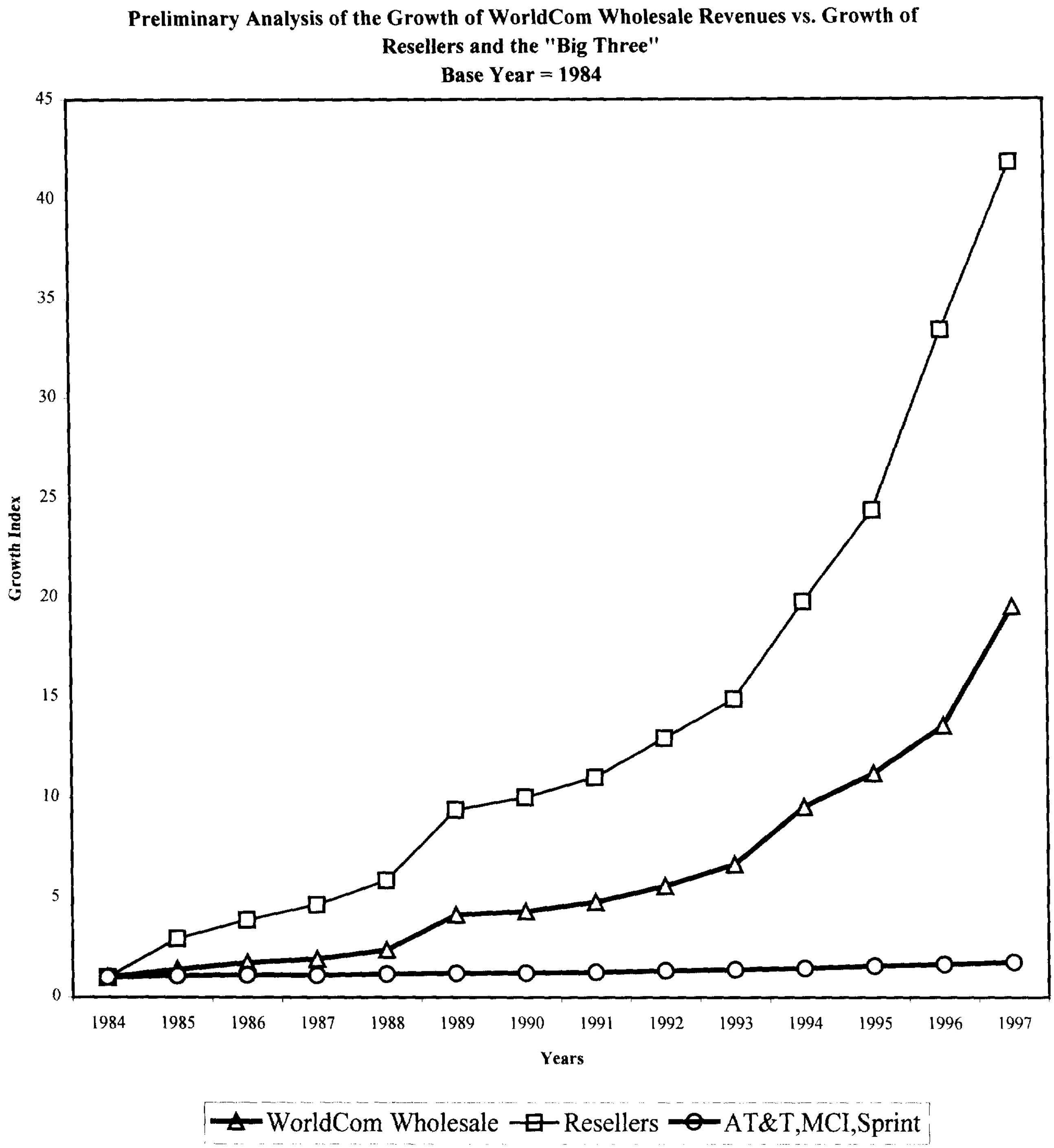
Source:
James Zolnierek and Kati Rangos. "Long Distance Market Shares: Third Quarter 1997," Industry Analysis Division, Common Carrier Bureau, Federal Communications Commission, January 1998, tables 3.2 and 3.4. We estimated the 1997 revenues based on growth of quarterly revenues from 1996 to 1997 and 1996 annual revenue.

Exhibit 2



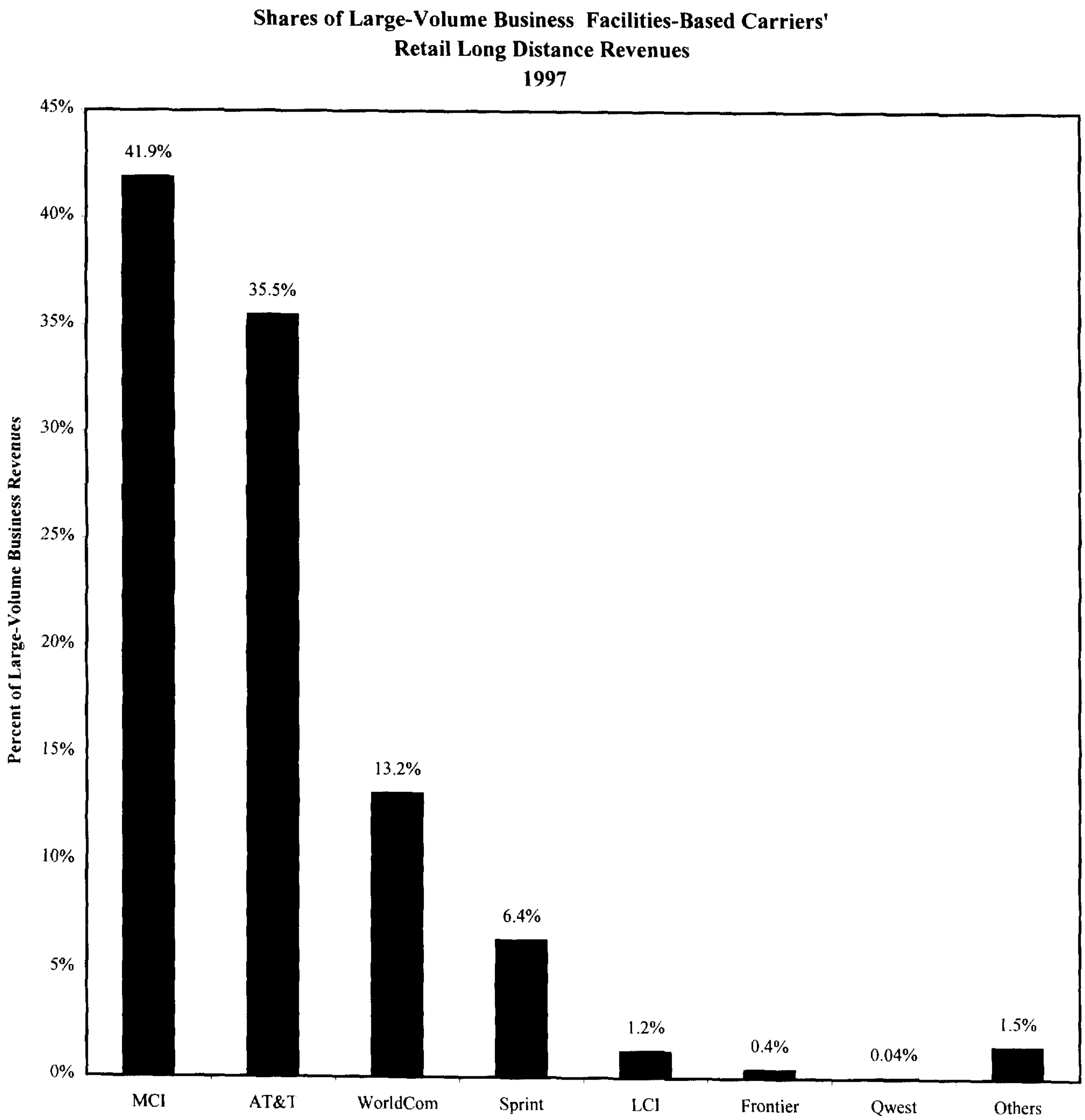
Source:
PNR and Associates, Inc., "Bill Harvesting III" (1996)
Major resellers include those specifically identified in this data base: Budget Call, Excel, LCI, LDDS, Touch 1, USBI, Vartec, and LECs.

Exhibit 3



Source:
We estimated WorldCom wholesale sales from Frost & Sullivan data (for 1997), Yankee Group data (for 1995 & 1996), and FCC data on WorldCom and WilTel revenues from "Long Distance Market Shares, Third Quarter, 1997, January 1998. Data on long distance revenues for resellers (i.e., all carriers other than WorldCom and the Big Three) and for AT&T, MCI and Sprint are from "Long Distance Market Shares, Third Quarter, 1997.

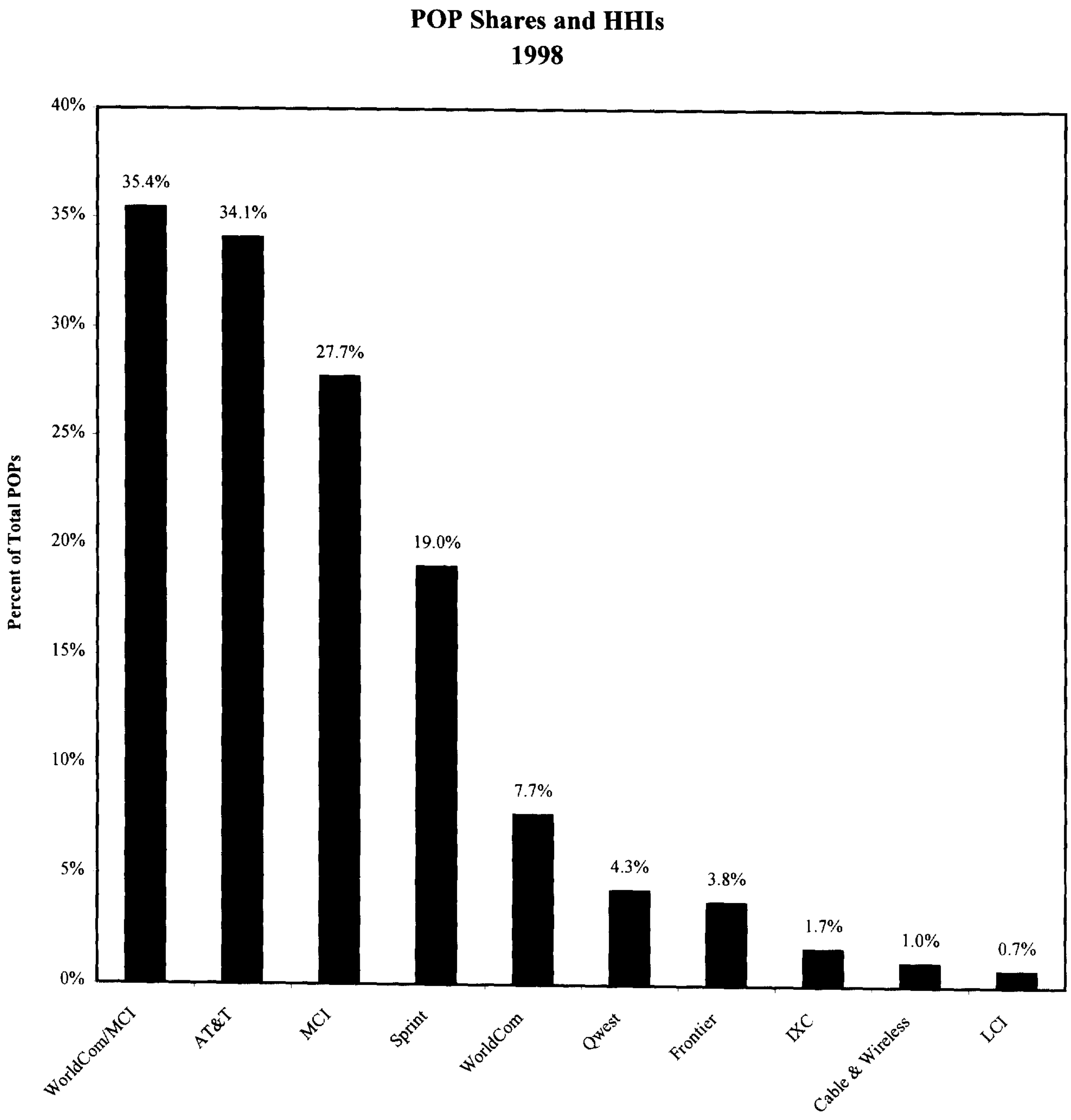
Exhibit 4



HHI Pre-Merger:	**3,194**
HHI Post-Merger:	**4,286**
Change in HHI:	**1,092**

Source:
Frost & Sullivan. High-Volume Business customers spend more than $4,170 per month for long distance service. Facilities-based carriers include carriers that use at least some of their own facilities to carry long distance traffic.

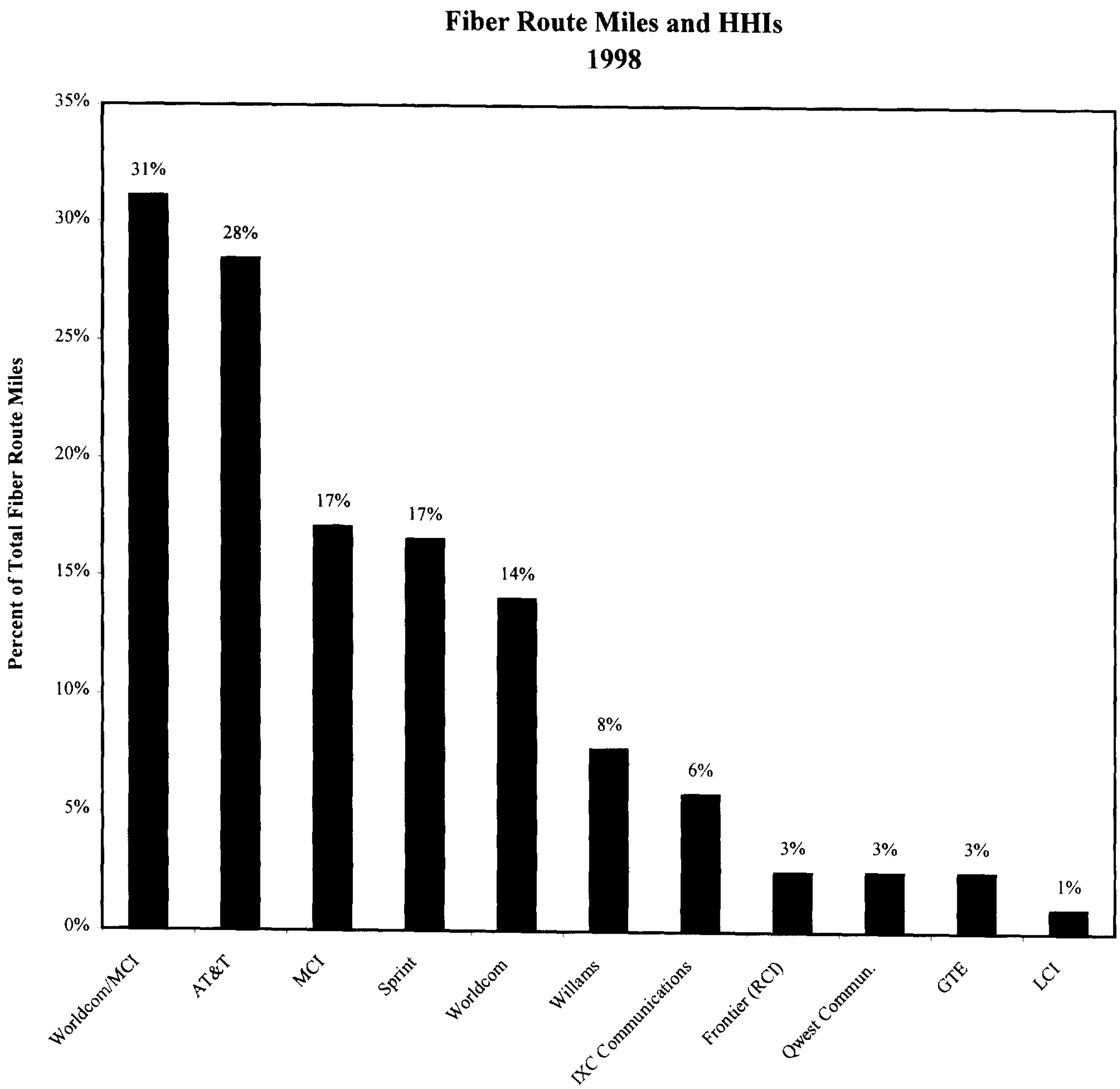
Exhibit 5



HHI Pre -Merger: **2,387**
HHI Post-Merger: **2,815**
Change in HHI: **428**

<u>Source</u>:
LECG estimates based on data from CCMI and company marketing information and company web site data.

Exhibit 6

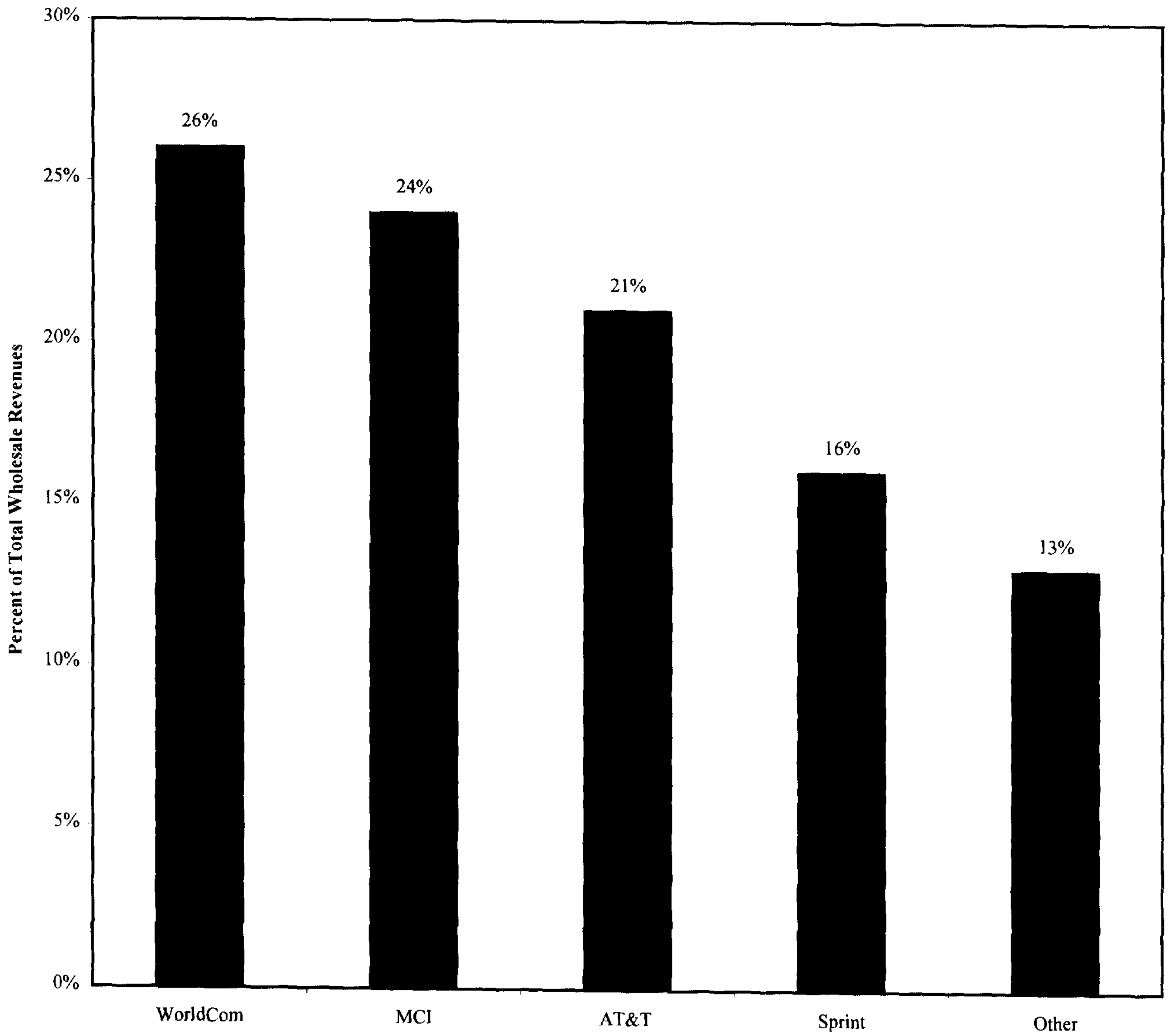


HHI Pre -Merger: **1,683**
HHI Post-Merger: **2,162**
Change in HHI: **479**

Source:
"Fiber Deployment Update, 1996," FCC Industry Analysis Division, 1997 and company marketing information.

Exhibit 7

Wholesale Revenue Shares and HHIs
1995

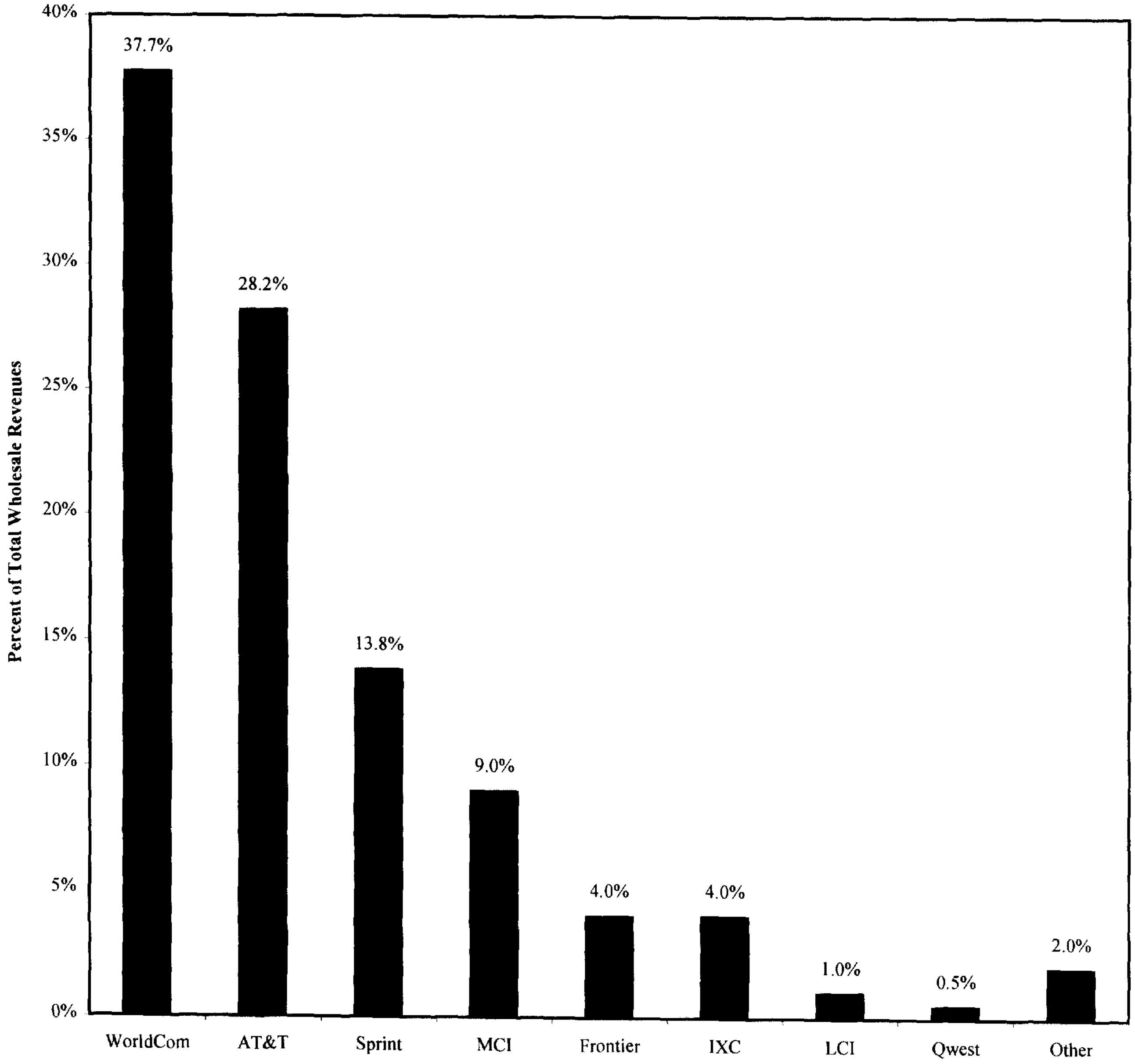


HHI Pre -Merger: **1,949**
HHI Post-Merger: **3,197**
Change in HHI: **1,248**

Source:
"U.S. Business Long-Distance Review," The Yankee Group, Vol. 11, Issue No. 103, December 1996, p. 11.

Exhibit 8

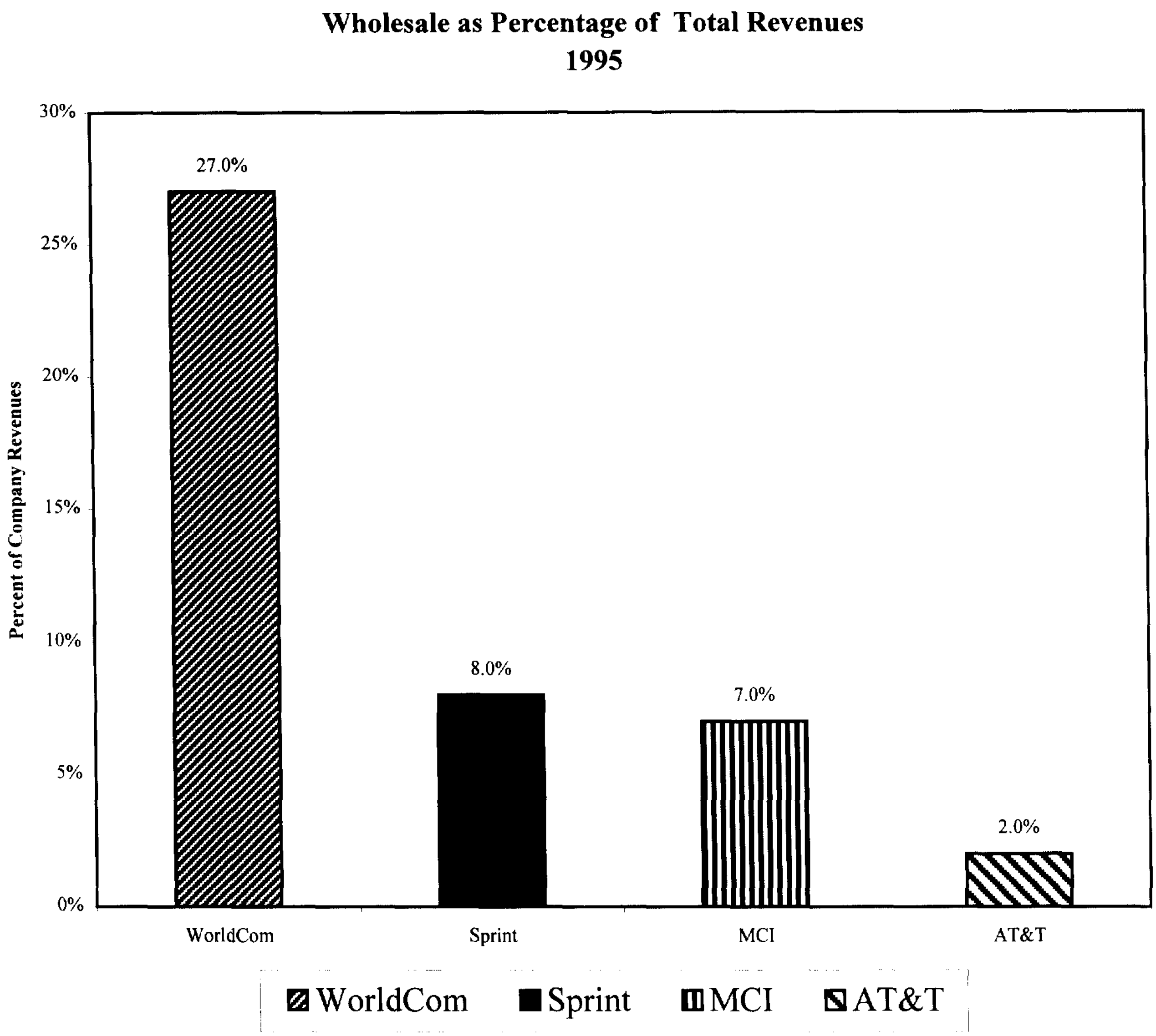
Wholesale Revenue Shares and HHIs
1997



HHI Pre -Merger: **2,538**
HHI Post-Merger: **3,222**
Change in HHI: **684**

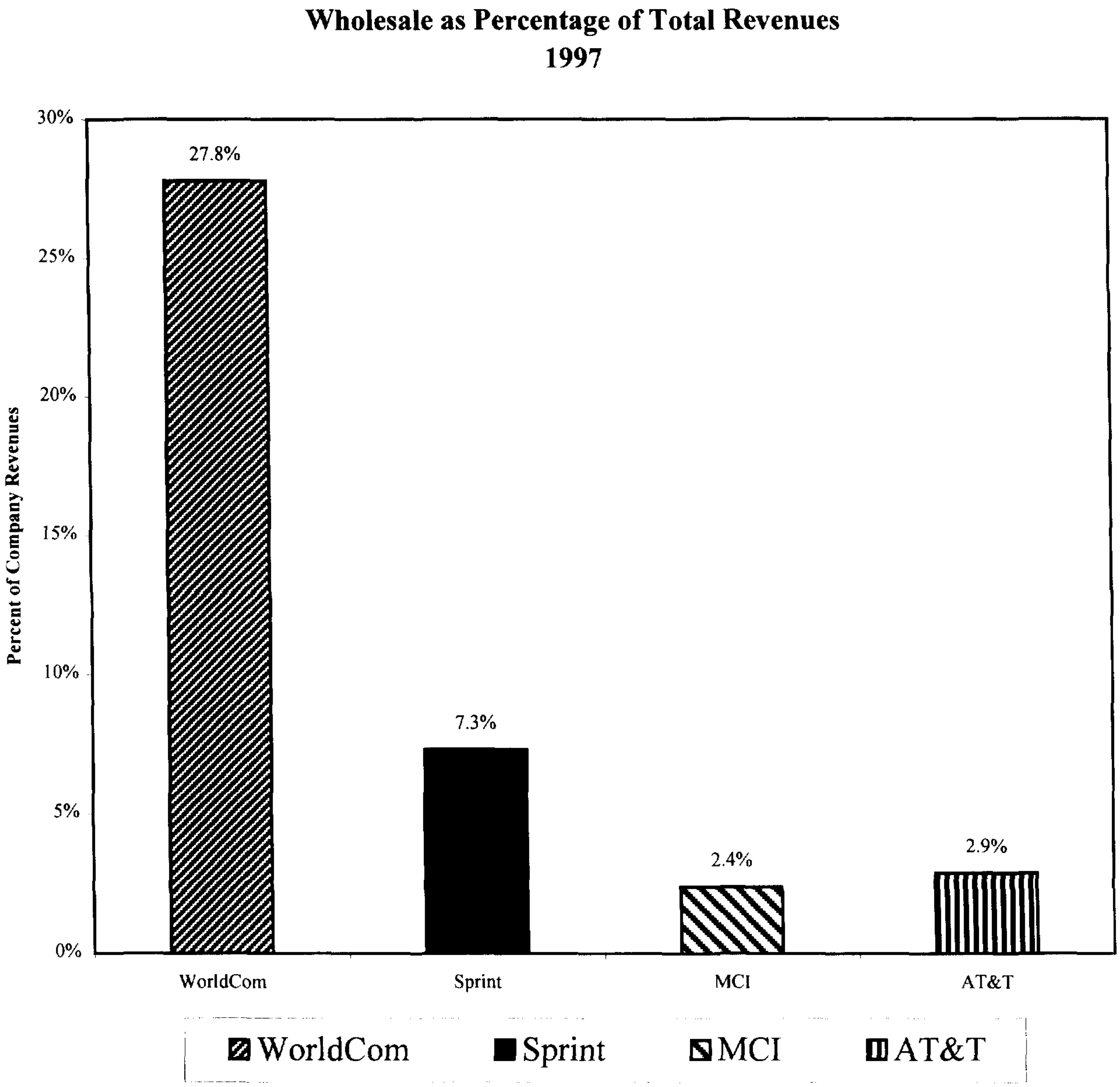
<u>Source</u>:
Frost & Sullivan

Exhibit 9



Source:
"Resale: A $10 Billion Footnote to the Long-Distance Market," *The Yankee Group,* Vol. 11, Issue 4, March 1996, p. 8.

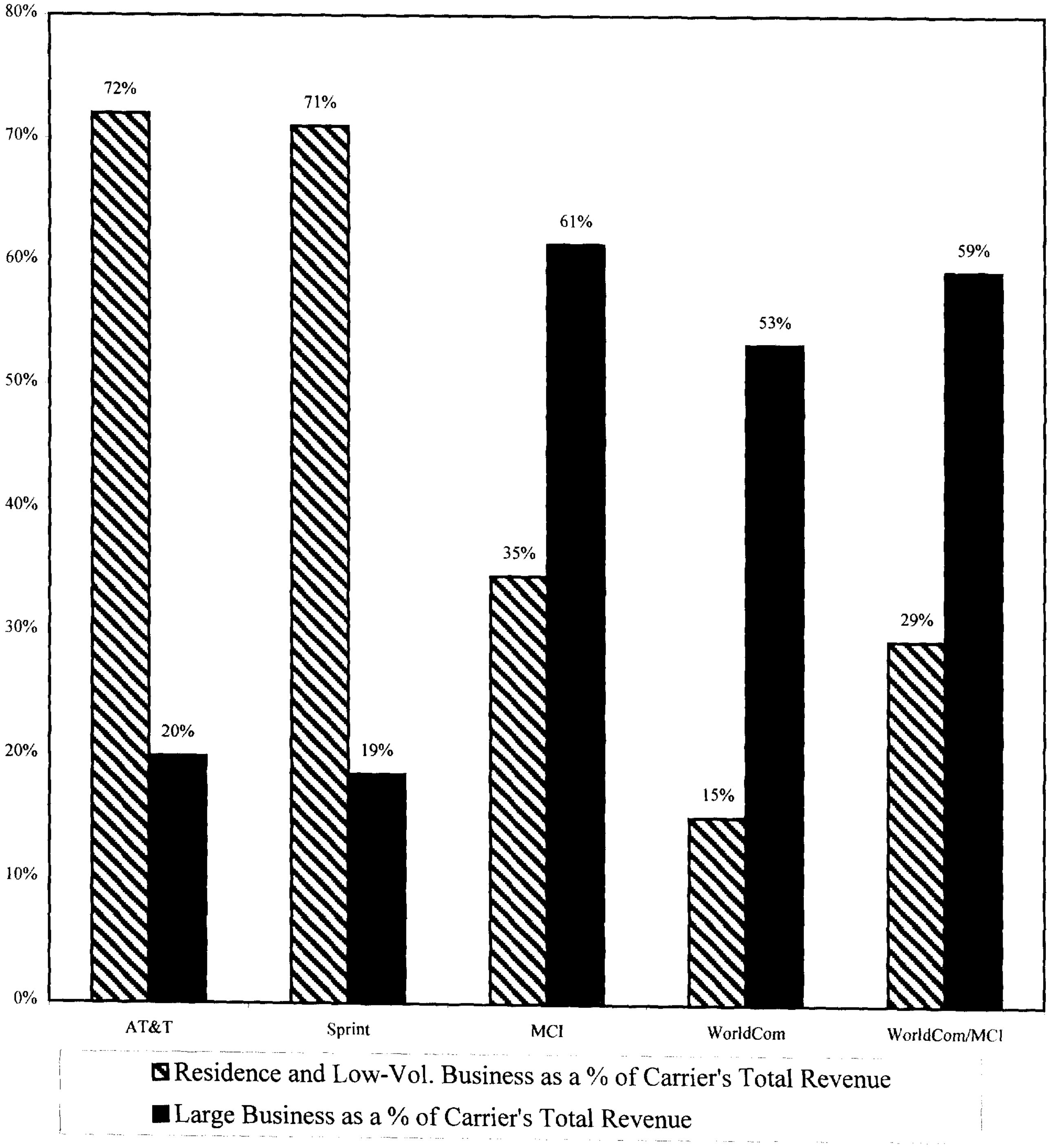
Exhibit 10



Source:
Frost & Sullivan

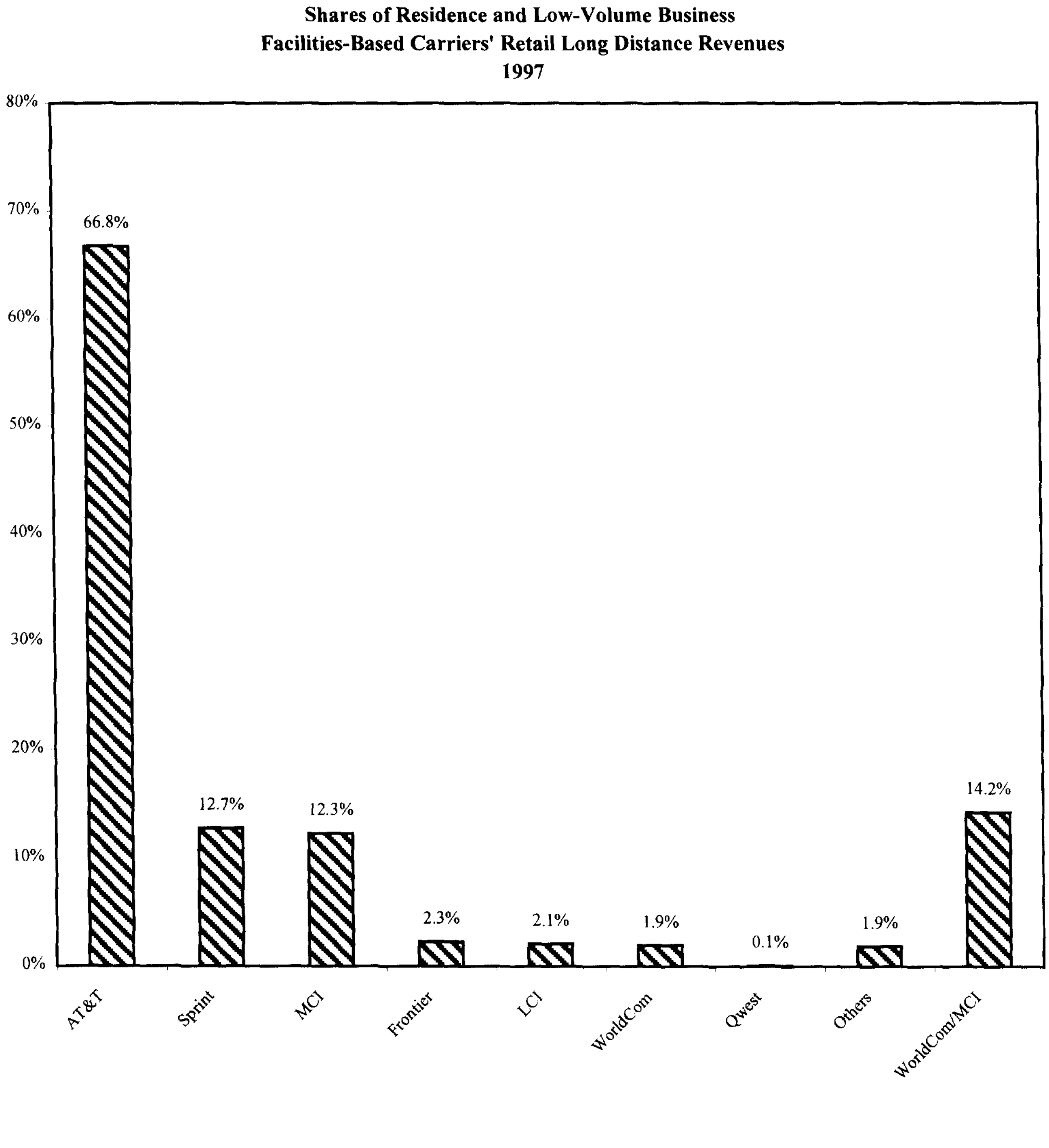
Exhibit 11

Residence and Low-Volume Business Revenue Vs. High-Volume Business Revenue, 1997



Source:
Frost & Sullivan
Large-volume customers have monthly long distance charges higher than $4,170. Low-volume have annual long distance charges below $4,170.

Exhibit 12



Source:
Frost & Sullivan
Low-Volume Business customers spend less than $4,170 per year for long distance service. Facilities-based carriers include carriers that use at least some of their own facilities to carry long distance traffic.